

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently Amended) Polycrystalline alumina components optionally containing MgO in a concentration of at most 0.3 wt-% ~~characterized in that, wherein~~ the alumina contains a concentration from 0.1 to 0.5 wt-% inclusive ZrO₂ ~~inclusive~~ as an additive and has an average crystal size $\leq 2 \mu\text{m}$, ~~and~~ a relative density higher than 99.95%, and is transparent with a real in-line transmission $\text{RIT} \geq 30\%$ measured over an angular aperture of at most 0.5° at a sample thickness of 0.8 mm and with a monochromatic wavelength of light λ .

2.(Currently Amended) ~~Polycrystalline~~ The polycrystalline alumina components according to claim 1, ~~characterized in that~~ wherein the average crystal size is $\leq 1 \mu\text{m}$ and the real in-line transmission RIT is at least 40%.

3.(Currently Amended) ~~Polycrystalline~~ The polycrystalline alumina components according to claim 1, ~~characterized in that~~ wherein the ZrO₂ additive is in a concentration from 0.1 wt-% to 0.3 wt-%, inclusive.

4. (Currently Amended) ~~Discharge~~ A discharge lamp characterized in that the lamp is provided with comprising a discharge tube having a wall of a ceramic as claimed in claim 1.

5. (Currently Amended) ~~Lamp~~ The discharge lamp according to claim 4 characterized in that wherein the discharge tube has an ionisable filling containing a metal halide.

6. (Currently Amended) ~~Method~~ A method for forming a polycrystalline alumina component as claimed in claim 1 characterized in that the process wherein the method includes the steps acts of preparing a slurry of corundum power with a mean grain size $\leq 0.2 \mu\text{m}$, adding a dopant, selected from zirconia and a zirconium containing precursor, casting the slurry in a mould to form a moulded body, drying and sintering of the moulded body ~~thus formed~~, and performing a HIP treatment at a temperature of at least 1150°C . for at least 2 hours.

7. (Currently Amended) ~~Method~~ The method according to claim 6, wherein the dopant is added as finely grained ZrO_2 .

8. (Currently Amended) ~~Method~~ The method according to claim 6, wherein the ~~finely grained ZrO_2~~ dopant has an average particle size of at most 100 nm.

9. (Currently Amended) ~~Method~~ The method according to claim 6, wherein after the ~~addition~~

~~of the zirconia dopant adding act,~~ the prepared slurry is slip cast in a mould.

10.(Currently Amended) ~~Method~~ The method according to claim 6, wherein after the addition of the zirconia dopant the prepared slurry is gel cast in a mould.

11.(Currently Amended) Polycrystalline alumina components ~~characterized in that the~~ comprising alumina which contains a concentration between 0.1 to 0.5wt-% inclusive as an additive, has an average crystal size $\leq 2 \mu\text{m}$, ~~and has a relative density higher than 0.3 wt-%, and is~~ transparent.

12.(Currently Amended) The Polycrystalline alumina components of claim 11 ~~further characterized in that,~~ wherein the alumina contains MgO in a concentration of at most 0.3 wt-%.

13.(Currently Amended) ~~Discharge~~ A discharge lamp ~~characterized in that the is provided~~ with comprising a discharge tube having a wall of a ceramic as claimed in claim 11.

14.(Currently Amended) ~~Method~~ A method for forming a polycrystalline alumina component as claimed in claim 11 ~~characterized in that,~~ wherein the ~~process method~~ includes the steps acts of:

preparing a slurry of corundum power with a mean grain size $\leq 0.2 \mu\text{m}$,

adding a dopant, selected from zirconia and a zirconium containing precursor,

casting the slurry in a mould to form a moulded body, drying and sintering of the moulded
body ~~thus formed~~, and
performing a HIP treatment at a temperature of at least 1150° C. for at least 2 hours.

15.(New) The Polycrystalline alumina components of claim 11, wherein the transparency of the alumina is at least 30% having a real in-line transmission $RIT \geq 30\%$ measured over an angular aperture of at most 0.5° at a sample thickness of 0.8 mm and with a monochromatic wavelength of light λ .

16.(New) The polycrystalline alumina components of claim 11, wherein the RIT is based on a following relationship:

$$RIT = (1 - R) \exp\left(-\frac{3\pi^2 G d \Delta n^2}{2\lambda_0^2}\right)$$

where

R is a coefficient of surface reflection,

d is the sample thickness,

G is the average crystal size,

Δn is an effective birefringence of alpha-alumina calculated as a weighted average of refractive index differences between each of main optical axes, and

λ_0 is the monochromatic wavelength of the light in vacuum.